

**567—67.7(455B) Land application requirements for Class I sewage sludge.**

**67.7(1) Class I sewage sludge criteria.** Class I sewage sludge is sewage sludge that meets the pollutant concentrations in paragraph 67.7(1)“a,” the Class A pathogen reduction requirements in paragraph 67.7(1)“b,” and the vector attraction reduction requirements in paragraph 67.7(1)“c” below.

*a. Pollutant concentrations for Class I sewage sludge.* The concentration of each pollutant in the sewage sludge shall not exceed the concentration for the pollutant in Table 1.

TABLE 1—POLLUTANT CONCENTRATIONS

<u>Pollutant</u>	<u>Monthly Average Concentration</u> <u>milligrams per kilogram*</u>
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Nickel	420
Selenium	100
Zinc	2800

\*Dry weight basis

*b. Class A pathogen requirements for Class I sewage sludge.* The sewage sludge shall comply with subparagraphs 67.7(1)“b”(1) and (2) below.

(1) The sewage sludge shall comply with one of the following monitoring processes. Compliance with pathogen density shall not be based on an average value. Each individual sample result shall meet the numerical pathogen standards.

1. The density of fecal coliform in the sewage sludge shall be less than 1000 Most Probable Number per gram of total solids (dry weight basis), or

2. The density of Salmonella sp. bacteria in the sewage sludge shall be less than three Most Probable Number per four grams of total solids (dry weight basis).

(2) The sewage sludge shall comply with one of the following analytical and treatment processes.

1. The temperature of the sewage sludge shall be maintained at a specific value for a period of time using one of the procedures detailed below.

- When the percent solids of the sewage sludge is 7 percent or higher, the temperature of the sewage sludge shall be 50 degrees Celsius or higher; the time period shall be 20 minutes or longer; and the temperature and time period shall be determined using Equation 1, except when small particles of sewage sludge are heated by either warmed gases or an immiscible liquid.

- When the percent solids of the sewage sludge is 7 percent or higher and small particles of sewage sludge are heated by either warmed gases or an immiscible liquid, the temperature of the sewage sludge shall be 50 degrees Celsius or higher; the time period shall be 15 seconds or longer; and the temperature and time period shall be determined using Equation 1.

- When the percent solids of the sewage sludge is less than 7 percent and the time period is at least 15 seconds, but less than 30 minutes, the temperature and time period shall be determined using Equation 1.

Equation 1:

$$D = 131,700,000/10^{0.1400t}$$

Where D = time in days; t = temperature in degrees Celsius.

- When the percent solids of the sewage sludge is less than 7 percent; the temperature of the sewage sludge is 50 degrees Celsius or higher; and the time period is 30 minutes or longer, the temperature and time period shall be determined using Equation 2.

Equation 2:

$$D = 50,070,000/10^{0.1400t}$$

Where D = time in days; t = temperature in degrees Celsius.

2. The sewage sludge shall meet all of the following requirements:
  - The pH of the sewage sludge shall be raised to above 12 and shall remain above 12 for 72 hours;
  - The temperature of the sewage sludge shall be above 52 degrees Celsius for 12 hours or longer during the period that the pH of the sewage sludge is above 12; and
  - At the end of the 72-hour period during which the pH of the sewage sludge is above 12, the sewage sludge shall be air dried to achieve a percent solids in the sewage sludge greater than 50 percent.
3. Sewage sludge treated in other known processes shall be analyzed prior to pathogen treatment to determine whether the sewage sludge contains enteric viruses and viable helminth ova. The density of enteric viruses in the sewage sludge after pathogen treatment shall be less than one plaque-forming unit per four grams of total solids (dry weight basis). The density of viable helminth ova in the sewage sludge after pathogen treatment shall be less than one per four grams of total solids (dry weight basis). Once the process has been demonstrated to achieve the required pathogen reduction, the process must be operated under the same conditions that were used during the demonstration.
4. Sewage sludge treated by unknown processes or by processes operating at conditions less stringent than the operating conditions at which the sewage sludge could qualify as Class I under other alternatives shall be analyzed prior to pathogen treatment to determine whether the sewage sludge contains enteric viruses and viable helminth ova. The density of enteric viruses in the sewage sludge shall be less than one plaque-forming unit per four grams of total solids (dry weight basis). The density of viable helminth ova in the sewage sludge shall be less than one per four grams of total solids (dry weight basis).
5. Sewage sludge shall be treated in one of the Processes to Further Reduce Pathogens (PFRP) described in 567—67.11(455B).
6. Sewage sludge shall be treated in a process that is equivalent to a Process to Further Reduce Pathogens (PFRP), as determined by the department.
  - c. *Vector attraction reduction requirements for Class I sewage sludge.* The sewage sludge shall meet one of the following vector attraction reduction requirements.
    - (1) The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38 percent.
    - (2) Digest a portion of the previously anaerobically digested sewage sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30 and 37 degrees Celsius. If, at the end of the 40 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 17 percent, vector attraction reduction is achieved.
    - (3) Digest a portion of the previously aerobically digested sewage sludge that has 2 percent solids or less aerobically in the laboratory in a bench-scale unit for 30 additional days at 20 degrees Celsius. If, at the end of the 30 days, the volatile solids in the sewage sludge at the beginning of that period is reduced by less than 15 percent, vector attraction reduction is achieved.
    - (4) The specific oxygen uptake rate (SOUR) for sewage sludge treated in an aerobic process shall be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 20 degrees Celsius.
    - (5) Sewage sludge shall be treated in an aerobic process for 14 days or longer. During that time, the temperature of the sewage sludge shall be higher than 40 degrees Celsius and the average temperature of the sewage sludge shall be higher than 45 degrees Celsius.
    - (6) The pH of sewage sludge shall be raised to 12 or higher, measured at 25 degrees Celsius, by alkali addition and, without the addition of more alkali, shall remain at 12 or higher for 2 hours and then at 11.5 or higher for an additional 22 hours.
    - (7) The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 75 percent based on the moisture content and total solids prior to mixing with other materials.

(8) The percent solids of sewage sludge that contains unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 90 percent based on the moisture content and total solids prior to mixing with other materials.

(9) Sewage sludge shall be injected below the surface of the land and no significant amount of the sewage sludge shall be present on the land surface within one hour after the sewage sludge is injected.

(10) Sewage sludge applied to the land surface or placed on a surface disposal site shall be incorporated into the soil within six hours after application to or placement on the land.

**67.7(2) Management practices for Class I sewage sludge.** Class I sewage sludge may be land-applied in conformance with the following rules:

- a. Class I sewage sludge may be applied to a lawn or a home garden.
- b. Sewage sludge shall be applied to the land at an annual whole sludge application rate that is equal to or less than the agronomic nitrogen uptake rate, unless otherwise specified by the department.
- c. An information sheet shall be provided to the person who receives sewage sludge sold or given away in a container for application to the land. The label or information sheet shall contain the following information:

- (1) The name and address of the sewage sludge generator.
- (2) A statement that application of the sewage sludge to the land is prohibited except in accordance with the instructions on the information sheet.
- (3) The annual application rate for the sewage sludge.

**67.7(3) Frequency of monitoring for Class I sewage sludge.**

a. The frequency of monitoring for the pollutants listed in Table 1, the pathogen density requirements, and the vector attraction reduction requirements shall be the frequency stated in Table 2.

TABLE 2—FREQUENCY OF MONITORING

Amount of sewage sludge per 365-day period dry weight basis	Monitoring Frequency
Greater than 0 but less than 290 metric tons (or 320 English tons)	once per year
Equal to or greater than 290 but less than 1,500 metric tons (320 to 1,653 English tons)	once per quarter (4 times per year)
Equal to or greater than 1,500 but less than 15,000 metric tons (1,653 to 16,535 English tons)	once per 60 days (6 times per year)
Equal to or greater than 15,000 metric tons (or 16,535 English tons)	once per month (12 times per year)

b. After the sewage sludge has been monitored for two years, the department may reduce the frequency of monitoring, but in no case shall the frequency of monitoring be less than once per year when sewage sludge is applied to the land.

**67.7(4) Record keeping for Class I sewage sludge.**

a. Both the generator and bulk sludge applicator of Class I sewage sludge shall develop the following information and shall retain the information for five years:

- (1) The concentration of each pollutant listed in Table 1 in the sewage sludge.

(2) The following certification statement: “I certify, under penalty of law, that the Class I sewage sludge requirements have been met. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.”

(3) A description of how the Processes to Further Reduce Pathogens requirements (PFRP) are met.

(4) A description of how one of the vector attraction reduction requirements is met.

(5) A description of how the management practices are met for each site.

*b.* Treatment works with a design flow rate of 1 million gallons per day or greater and treatment works that serve 10,000 people or more shall submit the above information to the EPA, using EPA’s NPDES eReporting Tool (NeT), by February 19 of each year for the previous calendar year.

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